DOCUMENT RESUME

ED 279 109 EC 191 364

TITLE Serving the Underserved in the Head Start Population: The Bright/Gifted/Talented. Program Performance Report.
INSTITUTION Illinois Univ., Urbana. Inst. for Child Behavior and Development.
SPONS AGENCY Administration for Children, Youth, and Families (DHHS), Washington, D.C.
PUB DATE 6 Dec 85
GRANT DHHS-90CD0513/01
NOTE 32p.; For training materials developed during this project, see EC 191 365-369.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Creative Thinking; *Gifted; *Outcomes of Education; Parent Participation; Preschool Education; Productive Thinking; *Professional Training; *Program Effectiveness; Skill Development; Standardized Tests; *Talent; Talent Development; Talent Identification; Volunteer Training
IDENTIFIERS Bringing Out Head Start Talents; *Project Head Start

ABSTRACT

The Bringing Out Head Start Talents (BOHST) project modified existing materials and procedures from the Retrieval and Acceleration of Promising Young Handicapped and Talented (RAPYHT) model in order to train Head Start personnel, parents, and volunteers to identify and program for Head Start children who are functionally or potentially bright/gifted/talented. The five components of the BOHST project are described: (1) general programming (to enrich thinking skills), (2) identification of talent or gifts, (3) talent programming (in such areas as art, music, reading, science, mathematics, psychomotor ability), (4) parent programming, and (5) transition to public schools. Program results are reported for an intervention group (N=234) whose staff and parents received complete BOHST training, and for a control group (N=212). Those from each group identified as bright/gifted/talented (N=24 and N=18, respectively) were administered a pre/post-test battery, as were an additional set of nonidentified children from both groups. Among reported results were the following: on the "Torrance Thinking Creatively in Action and Movement" test, children in the comparison group had substantial decreases on posttest scores, while scores of both groups of children in the intervention group increased; on the Kaufman Assessment Battery for Children, both identified children (gifted/bright/talented) and nonidentified children made gains over their comparison group counterparts. (JW)

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DEPARTMENT OF HEALTH & HUMAN SERVICES
OFFICE OF HUMAN DEVELOPMENT SERVICES

Program Performance Report
for
Administration for Children, Youth and Families

1. Date of Report: December 6, 1985

2. Grant Number: 90CD0513/01

3. Period of Report: September 1, 1984 - August 31, 1985

4. Grantee Name and Descriptive Name of Project:

The Board of Trustees
The University of Illinois
Urbana, Illinois 61801

Serving the Underserved in the Head Start Population:
The Bright/Gifted/Talented

5. Certification. I certify that to the best of my knowledge and belief this report (consisting of this and subsequent pages and attachments) is correct and complete in all respects, except as may be specifically noted herein.

Merle B. Karnes

Merle B. Karnes, Project Director

EC 19,364

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INTRODUCTION

Since the 1960's there has been an increasing emphasis on educational opportunities for children from disadvantaged and culturally diverse backgrounds. Most of this effort has been directed at children experiencing educational difficulty. One such program is Head Start. Since its inception it has made great strides in improving and expanding services to children who are average and to the 10% of its population who are diagnosed as handicapped. The children who have remained underserved are the bright/gifted/talented--the top 10% to 20% enrolled in Head Start programs. The Bringing Out Head Start Talents (BOHST) project was devised to meet this need.

BOHST was composed of several components, the main purpose of which was to modify existing materials and procedures to train Head Start personnel, parents, and volunteers to identify and more appropriately program for the top 20% of the Head Start program who are functionally or potentially bright/gifted/talented. Over a period of ten years, the Office of Special Education Programs has funded the University of Illinois to develop and disseminate a model for identifying and more appropriately programming for gifted/talented children. The model developed was called RAPYHT (Retrieval and Acceleration of Promising Young Handicapped and Talented). Instruments, procedures, and materials were developed in the RAPYHT project for the identification of young gifted/talented handicapped and nonhandicapped children. In a few instances these materials have been used with the handicapped in Head Start programs. The conclusions drawn from these experiences were that those procedures and materials did not lend themselves to replication in Head Start. The main problem was the difficulty of Head Start staff in understanding the language and concepts. In addition to this problem, the staff also lacked training in recognizing the characteristics of the gifted and how to differentiate the curriculum for them. Consequently, the objectives for this project were:

1. To modify existing instruments, procedures, and materials.
2. To train Head Start personnel, volunteers, and parents to implement the model.
3. To develop procedures which ensured that the target population made a smooth transition into the public schools and received appropriate programming.
4. To determine the impact of implementing this project involving identification and programming for bright/gifted/talented children, teachers, and parents.
5. To develop viable ways to demonstrate this project to Head Start personnel and other interested professionals.
6. To develop viable ways to disseminate this project nationwide to all Head Start grantees.

The material, instruments, and procedures from the RAPYHT project have been modified to better serve Head Start needs. The language was clarified and examples were added to reinforce concepts. Teacher training was made competency-based and geared to an individualized, interpersonal approach. Parent programming and materials were adapted for flexible use in meeting the needs of each family. Training included (a) general enrichment programming, both in the classroom and at home, for all the Head Start children, (b) identification processes for determining the bright/gifted/talented in the Head Start program, using both parent and teacher input, (c) specific programming, both in the classroom and at home, for the identified talented children in their specific talent area, (d) programming to involve parents and volunteers as advocates and mentors for the young gifted/talented, and (e) strategies for aiding the transition from the Head Start program to the public school system to ensure continuity of programming.

The model for identifying and programming for bright/gifted/talented Head

Start children was in the Head Start classes of Champaign County, Illinois. The demonstration center was open to personnel from other Head Start programs around the country and the project assistant director was available for explanation and information.

Awareness of the project has been disseminated by the following procedures:

1. Paper presented at the national Resource Access Project conference.
2. Proposals for presentations of papers have been accepted for:
   a. National Conference for Council for Exceptional Children
   b. National Conference for American Educational Research Association
3. Articles currently being written for publication in journals whose membership is primarily interested in early childhood education.
4. Final training materials will be sent to Resource Access Project centers.

The final organization of the BOHST project was made up of five component parts. These components were specifically designed and developed to meet the needs of the Head Start bright/gifted/talented population. The components are General Programming, Identification, Talent Programming, Parent Programming, and Transition to Public Schools. The remainder of this report consists of two main sections, the first of which describes the components of Project BOHST, while the second discusses the steps taken to examine the impact of Project BOHST on the intervention group.

PROGRAM DESCRIPTION

General Programming

The focus of General Programming was on enriching thinking skills of all children by giving teachers the opportunity to observe their children in new ways and to enhance the higher-level thinking skills of all the children in the classroom. Based on J. P. Guilford's Structure of the Intellect model, children were taught to think in three ways--convergent productive thinking, divergent

productive thinking, and evaluative thinking. These three kinds of thinking were introduced through three animal mascots: (a) Delores Detective, (b) Ivan the Inventor, and (c) Julius the Judge. Mascots were used because they provided teachers, parents, and children with a common reference point that was easily recognized. Pictures of the mascots provided children with a cue as to the thinking they were expected to use. The children heard stories about each of the mascots, describing the methods they used in their profession and the characteristics they had which made them good at their kind of thinking. Each mascot had a hand motion she or he used before starting to practice his or her kind of thinking. In addition to the pictures, each character's hand motion was used with the children to cue them that a certain thinking style was expected.

Delores Detective was presented as a trench-coated fox who helped the children learn about convergent productive thinking. In her story she turned up her trench coat collar, pinned on her detective badge and took on a mystery--the case of the missing pooch. Delores was depicted as sly, clever, persistent, and tenacious in the way she solved a case. Children were told that when Delores was on the scent, she was careful to pay attention to every clue until she found the right answer. Detective lessons involved solving a mystery through paying attention to clues. The children were given a general clue first, followed by more specific clues. Teachers were taught ways to stimulate convergent thinking through these activities.

Ivan the Inventor was presented as a test-tube-toting pig in a white lab coat who helped the children learn about divergent productive thinking. Ivan was depicted as being very good at coming up with new ways of seeing things. Children were told that they could tell when Ivan got ready to invent, because he took out his spectacles and put them on. In Ivan's story, he invented a new use for a bottle that he had found in his laboratory. Ivan came up with a long list of ideas, many of them zany and impossible. The story emphasized that Ivan

always pushed himself for more ideas until he found one that seemed really creative. Inventor lessons involved thinking of lots of answers to a single question. In this way, children learned to be more creative. Teachers were given training in helping children become more fluent, flexible and original.

The third character was Julius the Judge, who was presented as a dignified lion in a long robe who taught the children about evaluative thinking. Julius was described as being good at making decisions by carefully weighing options using a set of considerations. He taught the children about considerations and about how to weigh ideas to pick the best one. In his story he ruled on a court case involving two sisters who were having trouble making a gift decision. Children were told that Julius had never had a sloppy thought in his life--he always knew what criterion he was applying, and he stuck to the letter of the law.

Judge lessons involved children in coming up with the best answer by weighing the options using considerations. For most of the lessons, children saw a poster of a set of possible answers to be evaluated. For instance, if they were helping someone pick a pet, they would see a large poster with pictures of pets to choose among. The teacher could cross out the choices the children had eliminated, based on the considerations. In the early activities, the considerations were given; later on, ideas were solicited from the children.

Identification

This component focused on identifying the children with potential talent in one or more of six areas: intellectual ability; creativity; visual and performing arts; leadership; academic abilities in the areas of science, math, and reading; and psychomotor ability. Identifying talent or gifts is especially difficult at the preschool level before children have had the experiences necessary to develop and demonstrate their talents. For this reason, information was used both from the child's teacher and from his/her parents to

assess the child's skills as accurately as possible. By identifying a broad range of children with potential talent, an attempt was made to ensure that children's strengths were developed during their critical years.

Three instruments were used for selecting children with potential talent: the teacher checklist; the parent checklist; and the talent identification summary. Both the parent and teacher checklists contained a set of four abilities or behaviors indicative of talent in each area. The teacher rated each child in the classroom on the items tested. Parents filled out a checklist for their child. Ratings from both these checklists were recorded on the talent identification summary.

A final determination of which children were identified was made at the Talent Staffing. The classroom teacher, aide, ancillary staff, BOHST trainer, and the child's parents met to review the information recorded on the talent identification summary. The children identified at this meeting received talent programming.

The children reviewed at the staffing were those whose scores equaled or exceeded the cut-off of 24 in one or more talent areas. If the child passed the cut-off in more than one talent area, only the top one or two areas were reviewed. The following questions were considered at the staffing:

(1) Did the child exhibit many of the characteristics commonly attributed to children who are gifted or talented in that area?

(2) Was the child significantly superior to his classmates or peers in that talent area?

(3) Did the ratings on the parent checklist and the teacher checklist generally seem accurate?

(4) Did the additional information provided by other team members seem to verify the child's talent potential?

After considering these questions, the team made the final determination as

to which children would be identified as potentially talented or gifted. The identified children and their talent area(s) were rated on the talent identification summary.

Talent Programming

This component was designed to develop the identified child's potential talents by providing opportunities and experiences in the talent area. The programming was both broad in scope and individually tailored to the child. A manual was provided for the teacher which consisted of ten small-group activities for each talent area. Each activity was organized to develop four skill areas for that particular talent. These skill areas were closely related to the characteristics which were initially used on the identification checklists.

Intellectual Talent:

1. problem solving--the ability to think things out, focusing on a problem, thinking up lots of solutions, and selecting the best one.
2. remembering--the ability to recall information, developing an efficient storage and retrieval system for things experienced both during the lesson and in the past.
3. communicating--the ability to explain, stating ideas in clear and interesting ways.
4. seeing relationships--the ability to see differences, similarities, and connections, recognizing how things do or do not fit together.

Creative Talent:

1. fluency--the ability to produce a large number of ideas in response to a question or problem.
2. originality--the ability to produce new and unusual ideas.
3. elaboration--the ability to add great detail to an idea or product.
4. flexibility--the ability to take an idea in a different direction by

changing one's approach or point of view.

Leadership Talent:

1. self-confidence--possessing a high opinion of oneself, feeling secure about one's strengths and weaknesses.
2. organizing--being interested in and having the ability to plan and complete projects or involvement.
3. persuading--the ability to influence others, attracting others' interest and participation.
4. sensitivity--demonstrating a caring or concerned attitude toward others (other children, adults, animals, etc.).

Art Talent:

1. visual awareness--noticing, remembering, and discriminating between details, colors, textures, designs, and sizes.
2. appreciating art--enjoying and evaluating art works.
3. technique--using art tools and materials skillfully and in visually attractive ways.
4. originality--producing art work which is unique, unusual, different, or distinctive.

Music Talent:

1. listening--being alert to sounds in music and the environment.
2. performing--inventing or repeating musical phrases by singing, clapping, humming, and/or playing an instrument.
3. appreciating music--recognizing, enjoying, and evaluating different types of music.
4. originality--producing or appreciating music that sounds new, different, or unusual.

Reading Talent:

1. decoding--the ability to see subtle differences in how things look.

2. listening phonetically--the ability to detect similarities and differences in how words, parts of words, and letters sound.
3. speaking clearly--the ability to use words in interesting and creative ways.
4. understanding ideas--getting meaning from spoken and written language, understanding a wide range of words, collecting facts and knowledge from observation.

Math Talent:

1. knowing numbers--the ability to remember and understand numbers, quantities, and shapes.
2. seeing connections--the ability to recognize, duplicate, and extend patterns; the ability to see relationships by comparing, sorting, classifying, graphing, and sequencing numbers at the concrete and abstract levels.
3. abstraction--the ability to identify and understand the underlying concept of a problem.
4. using math--the ability to apply learned processes to solve new problems.

Science Talent:

1. organizing--matching, sorting, grouping, or ordering objects and/or information.
2. remembering--recalling information related to an area of science.
3. observing--seeing and identifying attributes, differences, and similarities of objects or events.
4. problem solving--figuring out answers by observing, asking questions, making hypotheses, and/or experimenting.

Psychomotor Talent:

1. fitness--having the energy and physical ability to perform physical

activities for varying amounts of time, having strength and endurance.

2. expressiveness--producing and exploring movements in imaginative or original ways.
3. ease and quickness--demonstrating agility, flexibility, and grace when doing a physical activity.
4. coordination--having the balance, rhythm, and control to perform various physical activities; having eye-hand or eye-foot coordination.

The ten activities for each talent area were presented in the same format throughout the manual. The activities were set up so the teacher could assess the child's progress in the four skill areas as the lesson was taught. The right-hand side of the page contained the assessment questions, which were based on the lesson objectives and were directly across the page from the related activity.

The lessons were designed for small groups of two to five children. The groups could include both identified children and unidentified children who had exhibited an interest in the area.

After the first three lessons had been completed, the child's progress was evaluated by the teacher and a talent education plan was designed for each identified child, adapting the materials to meet the needs and abilities of the child.

Parent Programming

The parent programming component covered several different areas: general enrichment in the home; the identification process; home activities for children who were identified as bright/gifted/talented; volunteering and child advocacy.

The general enrichment programming was introduced to the parents at a workshop to which all the parents were invited and encouraged to attend. Information was presented about strategies that could be used in the home to encourage the child's divergent, convergent, and evaluative thinking skills.

Activities were provided in a manual, "Activities for the Home," for each parent to use to encourage the child's creativity.

The parent's knowledge of the child was incorporated into the identification process by means of a home visit arranged by the teacher. During this interview, the teacher and the parent worked together to fill out the parent checklist. The parents of every child were part of this process. The parents were also invited to the staffing at which the final determination was made for talent identification.

The third area of parent training was specific programming for children who had been identified as bright/gifted/talented. The parents of the identified children were invited to a second workshop. At this workshop they were given information concerning their child's potential talents. Some strategies for developing the talents were discussed and activity booklets were distributed to each parent for his/her child's talent area.

Parents were encouraged to volunteer in the classroom--to become an active part of the educational process. The parents were also advised of the role of the parent in child advocacy. They were encouraged to follow the transition to public school very carefully; to be sure the classroom teacher was aware of the child's potential talent; to question; to visit the classroom.

Transition to Public Schools

The final component was transition to the public schools. It appeared vital that the public school administrators and the child's kindergarten teacher be aware of the child's special abilities. It was also felt that this awareness would help ensure the continued development of each identified child's talent area. In order to facilitate this process, an end-of-the-year talent report was completed and sent on to the the school to be attended. This report briefly explained the child's involvement in the BOHST project and described the child's particular talent(s). In addition, a general description of the kinds of

activities and skills that were focused on during the programming and the child's performance during these activities were also included in this report.

EVALUATION PLAN

Subjects

Four hundred and forty-six Head Start children, fifty teachers, and fifty teacher-aides participated as subjects. Subjects were taken from the Head Start program that emcompassed the Illinois counties of Champaign and Vermillion. Vermillion County Head Start sites served as the control group; the staff and parents received no training besides that required to identify bright/talented/gifted Head Start children. Champaign County Head Start sites served as the intervention group; staff and parents received complete BOHST training. The control group contained 212 children, 20 teachers, and 20 teacher aides. The intervention group contained 234 children, 12 teachers, and 12 teacher aides.

Instruments

All Children at both sites were administerd the following tests on a pre-test basis: (a) Children's Task Persistence (Karnes, Johnson, & Cohen, 1985), (b) Thinking Creatively in Action and Movement (Torrance, 1981), (c) four selected subtests of the Kaufman Assessment Battery for Children (Kaufman and Kauman, 1983), and (d) the Self-concept and Motivation Inventory (Milchus, Farrah, & Reitz, 1967). More detailed descriptions of the tests are contained below:

Children's Task Persistence. This test was developed to measure a child's level of task persistence. Children are first taught to solve a simple problem and are then presented with a problem-solving situation that is unsolvable. The length of time that children work at solving these problems is considered a representation of their task persistence.

Kaufman Assessment Battery for Children (K-ABC). An individually

administered measure of intelligence and achievement, the Kaufman Assessment Battery is standardized on a large, representative nationwide sample of normal and exceptional children ages 2 1/2 through 12 1/2 years. Following is a description of the subtests used:

1. Magic Circle--In this test, the child identifies a picture which the examiner exposes by slowly moving it behind a narrow window, making the picture only partially visible at any one time.
2. Face Recognition--The child selects from a group photograph the one or two faces that were exposed briefly on the preceeding page.
3. Gestalt Closure--The child names an object or scene pictured in a partially completed "ink blot" drawing.
4. Expressive Vocabulary--The child names the object pictured in a photograph.

The Torrance Thinking Creatively in Action and Movement. The tasks or activities that comprise this instrument are designed to sample some of the more important kinds of creative thinking abilities of preschool children. It is designed for use with three- to eight-year-old children. This test does not require verbal response, although verbal responses are accepted. Following is a description of the subtests used:

1. "How Many Ways?"--This test is designed primarily to sample children's ability to produce alternative ways of moving. Both verbal and action responses, and combinations of both verbal and action responses, are accepted.
2. "Can You Move Like?"--The child's ability to imagine, empathize, fantasize, and assume unaccustomed roles is sampled in this test. Children begin early to imitate the movements of animals and people. This activity provides six situations, four of them asking the child to pretend that he/she is an animal or object and the other two casting

the child in roles related to other objects.

3. "What Other Ways?"--This test is designed to measure the child's ability to accomplish a commonplace task in new ways. Children are asked to try different ways of putting a paper juice cup in a wastebasket.
4. "What Might It Be?"--This test assesses the child's ability to improvise with common objects in their environment and use them for other than their intended purposes. Children are asked to imagine all the different ways they can use a juice cup.

The Self-Concept and Motivation Inventory (SCAMIN). This test measures two elements of academic motivation. It is group-administered, orally, by the teacher. Three scores are obtained on the preschool/kindergarten level: Self-Concept, Achievement Needs, and Achievement Investment. Following is a description of the subtests used:

1. Self-Concept--This test measures the way a child views his role as a learner in school.
2. Achievement Needs--This measures the degree of positive regard with which a student perceives the intrinsic and extrinsic rewards of learning and performing in school.
3. Achievement Investment--This test measures the importance that the child placed on achievement.

Teacher Questionnaires. Teachers and aides were given two attitude questionnaires on a pre/post basis, entitled the Teacher Questionnaire and the Classroom Questionnaire. The Teacher Questionnaire focused on attitudes toward educating bright/gifted children, and the Classroom Questionnaire used a sematic differential approach to measure teachers' degree of positive attitude toward their classes. Although these measures were given prior to BOHST training, teachers and aides had at least one month's experience with their classes before completing the questionnaires.

Results

Tables 1 through 4 contain the summary statistics for children in the comparison and intervention groups. There were 24 children identified as bright/talented/gifted in the intervention group and 18 in the comparison group. All children, from both groups, who were identified as bright/gifted/talented were given the battery of tests on a pre-post basis. An additional set of children, from both groups, who were not identified as bright/gifteed/talented were randomly selected to be given the battery of tests. As a result of absences and scheduling problems, there are slight differences in the number of children given each of the tests within the different groups.

Table 1

Mean Scores for Students on the Torrance

Group and Test	n	Time of Test	
		Pre	Post
Intervention Group	80	92.46	93.82
Gifted/Bright/Talented	28	96.77	97.83
Fluency	28	101.03	101.11
Originality	28	93.46	91.68
Imagination	28	95.82	100.71
Other Children	52	90.14	91.66
Fluency	52	92.15	96.56
Originality	52	86.50	85.09
Imagination	52	91.76	93.32
Comparison Group	78	87.57	79.50
Gifted/Bright/Talented	17	101.08	84.15
Fluency	17	109.12	84.29
Originality	17	99.52	78.35
Imagination	17	94.59	89.82
Other Children	61	83.81	78.21
Fluency	61	87.73	78.78
Originality	61	80.45	71.11
Imagination	61	83.25	84.75

Table 2

Mean Scores for Students on the SCAMIN

Group and Test	n	Time of Test	
		Pre	Post
Intervention Group	80	17.92	18.43
Gifted/Bright/Talented	28	19.12	19.48
Achievement Need	28	15.00	15.66
Achievement Motivation	28	13.86	13.69
Self-Concept	28	28.51	29.10
Other Children	52	17.28	17.86
Achievement Need	52	13.50	13.83
Achievement Motivation	52	12.71	13.23
Self-Concept	52	25.62	26.52
Comparison Group	78	17.28	18.06
Gifted/Bright/Talented	17	17.80	18.90
Achievement Need	17	14.17	15.23
Achievement Motivation	17	13.58	14.24
Self-Concept	17	26.24	27.24
Other Children	61	17.14	17.82
Achievement Need	61	13.57	13.94
Achievement Motivation	61	12.46	13.27
Self-Concept	61	25.39	26.26

Table 3

Mean Scores for Students on the Kaufman

Group and Test	n	Time of Test	
		Pre	Post
Intervention Group	80	50.39	59.26
Gifted/Bright/Talented	28	53.35	62.91
Magic Circle	28	52.55	64.34
Face Recognition	28	56.28	63.62
Gestalt Closure	28	52.55	64.76
Vocabulary	28	52.03	58.90
Other Children	52	48.80	57.29
Magic Circle	52	43.36	59.77
Face Recognition	52	45.91	60.34
Gestalt Closure	52	44.21	57.64
Vocabulary	52	41.72	51.40
Comparison Group	78	48.03	56.70
Gifted/Bright/Talented	17	53.21	63.28
Magic Circle	17	58.69	66.00
Face Recognition	17	54.00	66.75
Gestalt Closure	17	51.75	66.00
Vocabulary	17	48.38	54.38
Other Children	61	46.58	54.86
Magic Circle	61	51.68	60.53
Face Recognition	61	47.52	55.45
Gestalt Closure	61	44.23	54.32
Vocabulary	61	42.87	49.13

Table 4

Mean Scores for Students on the Task Persistence

Group and Test	n	Time of Test	
		Pre	Post
Intervention Group	82	90.76	106.03
Gifted/Bright/Talented	28	120.62	89.69
Other Children	54	75.28	114.50
Comparison Group	79	90.36	92.44
Gifted/Bright/Talented	18	103.41	135.47
Other Children	61	86.51	79.74

To examine pre/post scores of the intervention and comparison groups on the Torrance, a split-plot factorial ANOVA with two between-group factors and two within-group factors was conducted. The first within-group factor had two levels and represented scores from the intervention and comparison group. The second between-group factor represented scores of the identified and nonidentified children. The first within-group factor represented scores from the pre- and posttests. The second within-group factor represented scores from the subtests of the Torrance. The ANOVA summary of this analysis is presented in Table 5.

As can be seen, the analysis of scores on the Torrance indicated that there were significant F ratios for the main effects representing group, phase, classification, and subtest differences. The intervention group did significantly better than the comparison group, and students identified as gifted/bright/talented did better than the other children. Complicating the significant differences between pre- and posttest scores was the significant group-by-phase interaction. Further analysis of this interaction indicated that there was no significant differences between the comparison and intervention group on the pretest and significant differences on the posttest. Furthermore, scores of the comparison group decreased dramatically on the posttest, while

overall scores of the intervention group slightly increased.

Table 5

Analysis of Variance Summary Table for Scores on the Torrance

Source of Variance	SS	df	MS	F
Between Group	231741.97	157	--	--
Group (Gr.)	22500.54	1	22500.54	17.86 **
Classification (Cl.)	13819.17	1	13819.17	10.97 **
Gr. x Cl.	1435.30	1	1435.30	1.14
Error Between	193986.96	154	1259.66	--
Within Group	280075.82	790	--	--
Subtest (Sub.)	11705.89	2	5852.95	31.23 **
Gr. x Sub.	88.97	2	44.49	.24
Cl. x Sub.	329.82	2	164.91	.88
Gr. x Cl. Sub.	101.60	2	50.80	.27
Error	57716.15	308	187.39	--
Phase (Ph.)	2721.90	1	2721.90	3.67 *
Gr. x Ph.	5364.70	1	5364.70	7.24 **
Cl. x Ph.	1210.12	1	1210.12	1.63
Gr. x Cl. x Ph.	1272.44	1	1272.44	1.72
Error	114168.17	154	741.35	--
Sub. x Ph.	2208.24	2	1104.12	4.19 **
Gr. x Sub. x Ph.	1322.51	2	661.26	2.51
Cl. x Sub. x Ph.	617.31	2	308.66	1.17
Gr. x Cl. x Sub. x Ph.	59.10	2	29.55	.11
Error	81188.90	308	263.60	--
Total		947		

*$p < .05$
**$p < .01$

Pre/post scores of the intervention and comparison groups on the Kaufman were analyzed through a split-plot factorial ANOVA with two between-group factors and two within-group factors was conducted. As with the Torrance, the first within-group factor had two levels and represented scores from the intervention and comparison group. The second between-group factor represented scores of the identified and nonidentified children. The first within-group

factor represented scores from the pre- and posttests. The second within-group factor represented scores from the subtests of the Kaufman. The ANOVA summary of this analysis is presented in Table 6.

As can be seen, the analysis of scores on the Kaufman revealed that there were significant F ratios for the main effects representing subtest, classification, and phase. As with the Torrance, children identified as gifted/bright/talented did better than the other children. There were also significant increases in posttest scores. Again, as with the Torrance, this relationship was complicated by significant group-by-phase interaction. Analysis of this interaction indicated that there was no significant difference between the comparison and intervention group on the pretest and significant differences on the posttest. This indicates that the intervention group made greater growth than the control group. It should also be noted that the children not identified as gifted/bright/talented made the most dramatic increases of any of the groups on the posttest.

There were also two other significant interactions--group by subtest and group by subtest by phase. Although these interactions were not central to the main objectives of this project, further analysis is required to understand fully their implications to the related main effects. Therefore, a more complete analysis is planned prior to the publication of overall project findings. The simple main effects of the two-way interaction will be examined, as will the simple interaction effects of the three-way interaction.

Table 6

Analysis of Variance Summary Table for Scores on the Kaufman

Source of Variance	SS	df	MS	F
Between Group	11538.03	159	--	--
Group (Gr.)	297.33	1	297.33	.46
Classification	14404.81	1	14404.81	22.32 *
Gr. x Cl.	0.35	1	0.35	.00
Error Between	100678.54	156	645.38	--
Within Group	96603.37	1120	--	--
Subtest (Sub.)	9571.45	3	3191.48	30.38 *
Gr. x Sub.	2022.13	3	674.04	6.42 *
Cl. x Sub.	109.08	3	36.36	.35
Gr. x Cl. x Sub.	315.18	3	105.06	--
Error	6766.16	468		
Phase (Ph.)	34648.19	1	34648.19	412.72 *
Gr. x Ph.	996.23	1	996.23	11.87 *
Cl. x Ph.	161.86	1	161.86	1.93
Gr. x Cl. x Ph.	513.45	1	513.45	6.12 *
Error	13095.72	156	83.95	--
Sub. x Ph.	1074.34	3	358.11	5.45 *
Gr. x Sub. x Ph.	190.30	3	63.43	.97
Cl. x Sub. x Ph.	166.62	3	44.54	.68
Gr. x Cl. x Sub. x Ph.	196.99	3	65.66	--
Error	26775.67	468		
Total	108141.40	1279		

*$p < .01$

Scores from the SCAMIN were also analyzed through a split-plot factorial ANOVA that was similar in structure to the previous ANOVAS with two within and two between group factors. The first within group factor had two levels and represented scores from the intervention and comparison group. The second between-group factor represented scores of the identified and nonidentified children. The first within-group factor represented scores from the pre- and posttests. The second within group factor represented scores from the tests of the SCAMIN. The ANOVA summary of this analysis is presented in Table 7.

As indicated in Table 7, the analyses of scores on the SCAMIN revealed that there were significant F ratios for the main effects representing group, subtest, classification, and phase. As with the Torrance and the Kaufman, the intervention group did significantly better than the comparison group, students identified as gifted/bright/talented did better than the other children, and both groups had significant increases on the posttest. However, unlike the other tests,there were no complicating interactions between any of the main effects.

Table 7

Analysis of Variance Summary Table for Scores on the SCAMIN

Source of Variance	SS	df	MS	F
Between Group	2691.71	157	- -	- -
Group	56.97	1	56.97	3.92*
Classification	372.29	1	372.29	25.65**
Gr. x Cl.	26.73	1	26.73	1.84
Error Between	2235.72	154	14.52	- -
Within Group	34629.92	709	- -	- -
Subtest	33115.77	2	16557.89	2125.53**
Gr. x Sub.	36.61	2	18.31	2.35
Cl. x Sub.	34.08	2	17.04	2.19
Gr. x Cl. Sub.	30.05	2	15.03	1.93
Error	2400.22	308	7.79	- -
Phase	94.36	1	94.36	11.49**
Gr. x Ph.	2.30	1	2.30	0.28
Cl. x Ph.	0.54	1	0.54	0.07
Gr. x Cl. x Ph.	2.91	1	2.91	0.35
Error	1265.06	154	8.21	- -
Sub. x Ph.	10.87	2	5.44	0.64
Gr. Sub. Ph.	2.90	2	1.45	0.17
Cl. x Sub. x Ph.	13.22	2	6.61	0.78
Gr. x Cl. x Sub. x Ph.	0.63	2	0.32	0.04
Error	2619.33	308	8.50	- -
Total	42321.63	947		

*$p < .05$
**$p < .01$

To examine scores from the Task Persistence test a split-plot factorial with two between-group factors and one within-group factor. The first within-group factor had two levels and represented scores from the intervention and comparison group. The second between-group factor represented scores of the identified and nonidentified children. The within-group factor represented scores from the pre- and posttests. The ANOVA summary of the analysis is presented in Table 8.

Findings from the Task Persistence test are the least conclusive of the battery of tests given. Children identified as gifted/bright/talented did better than the other children, and there was a significant three-way interaction. However, groups did not make significant pre/post gains, nor were there significant differences between the comparison or experimental group.

Table 8

Analysis of Variance Summary Table for Scores on the Task Persistence

Source of Variance	SS	df	MS	F
Between Group	1412934.02	*160	- -	- -
Group (Gr.)	2543.88	1	2543.88	.29
Classification (Cl.)	33603.01	1	33603.01	3.86*
Gr. x Cl.	8442.73	1	8442.73	.97
Error Between	1368344.40	157	8715.57	- -
Within Group	1460432.59	161	- -	- -
Phase	8496.00	1	8496.00	.97
Gr. x Ph.	5570.40	1	5570.40	.63
Cl. x Ph.	12946.10	1	12946.10	1.47
Gr. x Cl. x Ph.	51175.30	1	51175.30	5.81**
Error	1382244.79	157	8804.11	- -
Total	2873366.61	321		

*$p < .05$
**$p < .01$

Table 9 contains the summary statistics for teachers in the comparison and intervention groups. As a result of absences and scheduling problems, there are slight differences in the number of teachers given questionnaires within the two groups.

Table 9

Mean Scores for Teachers on the Teacher Questionnaire and Classroom Questionnaire

Teacher Questionnaire	Pre	n	Post	n
Intervention Group	3.66	16	3.67	13
Comparison Group	3.64	38	3.65	36
Classroom Questionnaire	**Pre**	**n**	**Post**	**n**
Intervention Group	5.96	19	6.02	19
Comparison Group	5.84	37	5.46	28

To examine scores from the Teacher Questionnaire and the Classroom Questionnaire, two factorial ANOVAs with two between-group factors were computed. Results of these analyses are presented in Tables 10 and 11 respectively. Examination of these tables revealed that there were no significant differences between groups on the Teacher Questionnaire and significant differences between groups on the Classroom Questionnaire. Although attitudes about gifted children were not changed, it appears that teachers in the intervention group became more positive about their classrooms.

Conclusion. Results from this project are extremely encouraging in that the project had an impact on teachers, children identified as gifted/bright/talented, and children not identified as gifted/bright/talented. There are few instances of educational programs having such a wide impact. Results from the Kaufman and the Torrance are particularly important. On the Torrance, children in the comparison group had substantial decreases on their posttest scores, while scores of both groups of children in the intervention group increased. It appears that children in the intervention group may have become less creative had it not been for BOHST training. On the Kaufman both identified gifted/bright/talented and non-identified children made gains over

their comparison group counterparts. Moreover, the biggest gains on the Kaufman were made by children not identified as gifted/bright/talented, indicating that exposing children to higher-order thinking skills may have a beneficial impact on all children. In addition, the attitudes of teachers in the intervention group was changed. The way they described their class became significantly more positive at the end of BOHST training, while the descriptions of the comparison group remained relatively stable. This suggests that having teachers focus on identifying the strengths of children and then programming for these strengths may improve the teacher's attitude toward these children.

Although further analysis of this data is needed to determine the implications of some of the more complex interactions, this analysis is extremely encouraging. It appears clear that the main tenets of project BOHST--focusing on the strengths of all children, providing all children with practice in higher-order thinking skills, identifying the gifted/bright/talented children, and providing home and classroom programming for the special talents of the gifted/bright/talented--have a dramatic positive impact on the whole program. It is our hope that these results will be given careful examination as future Head Start policy is developed.

Table 10

Analysis of Variance Summary Table for Classroom Questionnaire

Source of Variance	SS	df	MS	F
Group (Gr.)	2.43	1	2.43	4.26 *
Phase (Ph.)	.97	1	.97	1.70
Gr. x Ph.	1.41	1	1.41	2.47
Gr. at Pretest	.19	1	.19	.33
Gr. at Posttest	3.65	1	3.65	6.40*
Error	56.54	99	.57	- -
Total	61.35	102		

*$p < .05$

Table 11

Analysis of Variance Summary Table for Teacher Questionnaire

Source of Variance	SS	df	MS	F
Group (Gr.)	.01	1	.01	.07
Phase (Ph.)	.01	1	.01	.07
Gr. x Ph.	.01	1	.01	.07
Error	15.15	99	.15	- -
Total		102		

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